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**ASSIGNMENT BOOKLET**MAT1038 Applied Mathematics 10  
Module 5**FOR STUDENT USE ONLY**

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(If label is missing or incorrect)

Student File Number:

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Module Number: \_\_\_\_\_

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Assigned

Teacher: \_\_\_\_\_

Assignment

Grading: \_\_\_\_\_

Graded by: \_\_\_\_\_

Date Assignment Received:

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- Has your work been reread to ensure accuracy in spelling and details?
- Is the booklet cover filled out and the correct module label attached?

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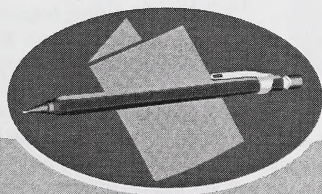


# **Applied Mathematics 10**

## **Module 5**

### **Linear Functions**

#### **ASSIGNMENT BOOKLET**



Learning  
Technologies  
Branch

**Alberta**  
LEARNING



## FOR TEACHER'S USE ONLY

### Summary

Total Possible Marks	Your Mark
70	

### Teacher's Comments

Applied Mathematics 10  
Module 5: Linear Functions  
Assignment Booklet  
Learning Technologies Branch  
ISBN 0-7741-2164-5

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	



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- Alberta Learning, <http://www.learning.gov.ab.ca>
- Learning Technologies Branch, <http://www.learning.gov.ab.ca/lrb>
- Learning Resources Centre, <http://www.lrc.learning.gov.ab.ca>

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## ASSIGNMENT BOOKLET

### APPLIED MATHEMATICS 10 – MODULE 5: LINEAR FUNCTIONS

Your mark on this module will be determined by how well you do on the assignment in this Assignment Booklet and the module project in the Project Booklet.

The value of each part of the module assignment is stated in the left margin of this booklet. The total value of the module assignment is 70 marks.

70

#### Module Assignment

Read all parts of this booklet carefully and record your answers in the appropriate places. Work slowly and carefully. If you are having difficulties, go back and review the appropriate activity in the Student Module Booklet.

Be sure to complete all parts of the assignment and proofread your responses before you submit this assignment to your teacher for grading.

For questions 1 to 3, circle the letter of the best answer.

1

1. Which equation represents a linear relation?

A.  $y = x^2 + 9$

B.  $x^2 - y^2 = 9$

C.  $y + 3x = 21$

D.  $y = 5x^2$

1

2. Which equation represents a direct variation?

A.  $y = x + 9$

B.  $xy = 9$

C.  $y = 7x$

D.  $y + 3x = 21$

1

3. Which equation has a slope of  $-3$ ?

A.  $y + 3x = 9$

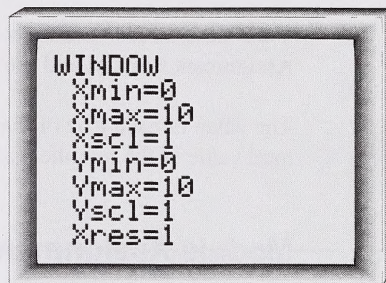
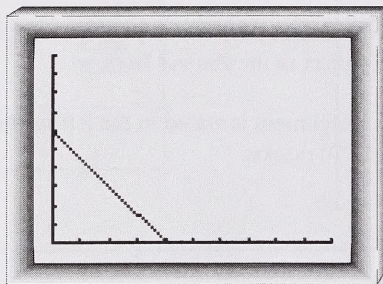
B.  $3xy = 18$

C.  $y = 3x$

D.  $3x + 7y = 21$



4. Refer to the given graph and its WINDOW setting. The relation represents the amount of fuel left as a function of the time spent travelling.



- ① a. Give the  $x$ -intercept of the graph.
- ① b. Give the  $y$ -intercept of the graph.
- ② c. Determine the slope of the graph.
- ① d. Write the equation of the line in  $y$ -intercept form.
- ② 5. Describe the graph of the equation  $x = -2$ . Sketch the graph.
6. The numbers 3, 7, 11, ... form an arithmetic sequence.
- ① a. Express the sequence as a linear function using a linear equation.

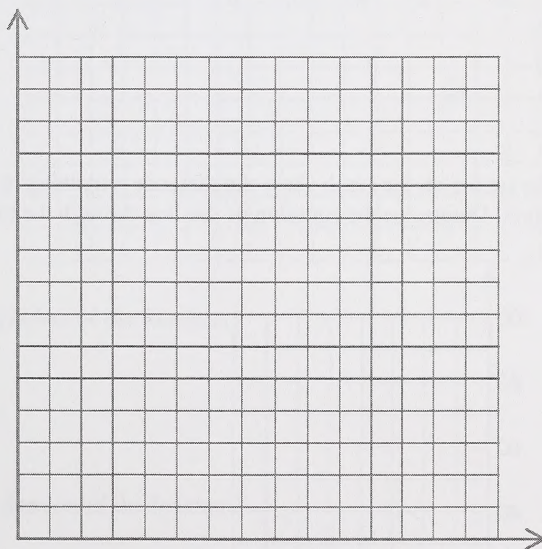
②

- b. What are the next three terms in the sequence? Show your work.

②

7. a. Turn to page 279 of the textbook and answer exercise 4.a. of “Exercises: Checking Your Skills.”

Number of People	Amount of Batter (cups)

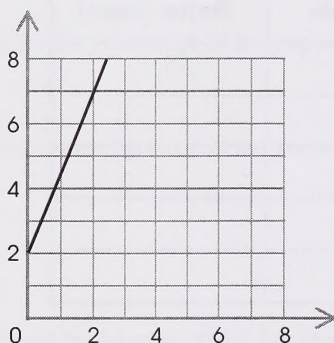


③

- b. Turn to page 279 of the textbook and answer exercises 4.b., 4.c., and 4.d. of “Exercises: Checking Your Skills.”

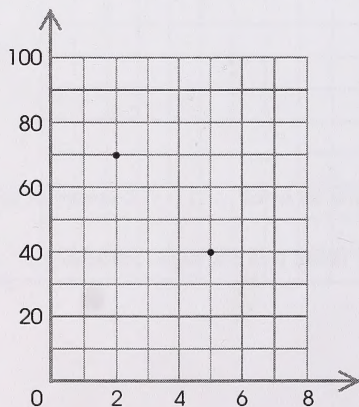
②

8. Write the equation for the linear equation represented by the graph.



③

9. The points on the graph show the distance remaining to get home after 2 h and after 5 h of travel. Determine the equation of the line through the two points.





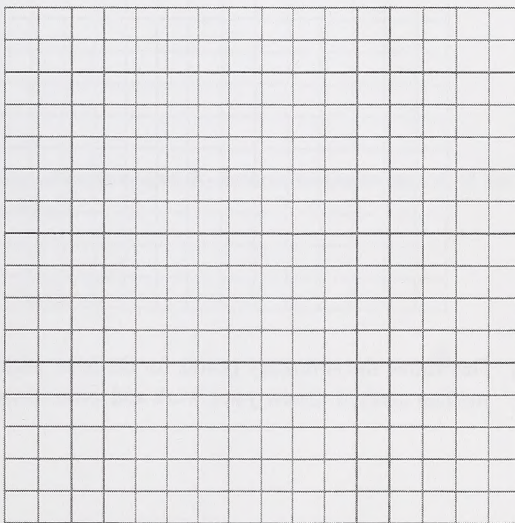
10. The cost of photocopying varies directly with the number of copies made. A customer was charged 15¢ for 1 copy.

②

- a. Make a table of values showing costs for up to 10 copies.

③

- b. Graph the function.



②

- c. Write the equation of the function.

①

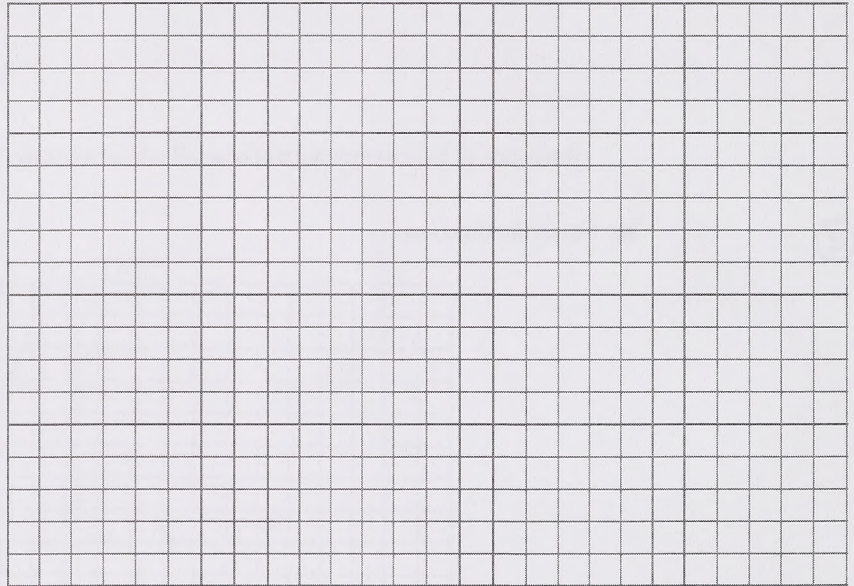
- d. What is the domain of the function?

11. A survey of a certain type of tree produced this data.

<b>Age (a)</b>	5	14	29	16	26	6	25	7	18
<b>Diameter (cm)</b>	8	23	34	24	24	10	30	14	13

3

- a. Make a scatterplot of the data. Use the grid provided.



6

- b. Determine the summary points for the first, middle, and last group based on the median-median method. Show your work and write down the coordinates of these points.



- ④ c. Determine the equation of the line passing through the outer summary points.
- ② d. Calculate the vertical distance from the line through the outer summary points to the middle summary point.
- ② e. Using the results of parts c. and d., determine the equation of the median-median line of best fit for the data.
- ② f. Tell what the slope of the relation indicates about the growth of these trees.

12. In a certain study, the average scores on a science test were compared to hours of studying.

Student	Study Time (hours)	Science Mark (%)
Andrea	6.1	58.8
Edward	6.0	55.9
Frank	5.7	60.3
Herbert	9.0	70.7
Jon	8.5	66.8
Natalie	8.4	63.7
Norinda	6.4	59.3
Sven	4.4	56.0

2

- a. Use your graphing calculator to determine the correlation coefficient for the data and the equation of the line of best fit based on the least squares method. Round your answer to 2 decimal places.

5

- b. Use your graphing calculator to graph the scatterplot with the line of best fit. Copy the calculator screen of the scatterplot or give a printout of the results. Be sure to include your name, the course name, and module number on any attached pages.



②

- c. How well can the data be represented by a linear relation? Give a reason for your answer.

②

- d. According to the data, what conclusion could you draw from the relation?

①

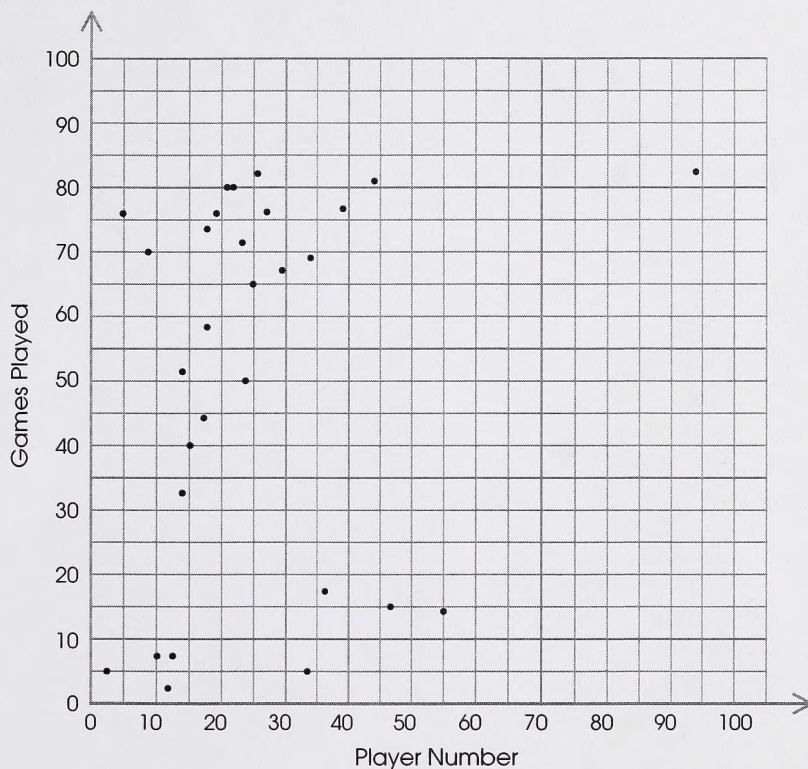
- e. The data comes from a survey of 23 students. What question should be asked before accepting the conclusion you made in part d.?

13. The team members of the River Valley Rockets played varying numbers of games. The following table shows the player number and games played for the team members.

Player Number	Games Played	Player Number	Games Played
2	5	22	80
5	76	23	72
9	70	24	50
10	7	25	65
12	2	26	82
13	7	27	76
14	33	29	67
14	52	33	5
15	40	34	69
17	44	37	17
18	73	39	77
18	58	44	81
19	76	47	15
21	80	55	14
_____	_____	94	82



The following is a scatterplot for the data.



②

- a. Does the relation appear to be a linear function? Explain. Base your explanation on the scatterplot of the data and a line of best fit.

②

- b. The correlation coefficient for the data is 0.17. What does the value of the correlation coefficient indicate about how well the data fit the line of best fit?

- ② 14. Complete the following chart so that the data has a correlation coefficient of 1. Choose your own method and indicate how you found the missing value.

$x$	$y$
2	6
4	
8	9

15. Use the given graph of fuel consumption versus engine size to predict the fuel consumption of an engine with the following sizes.

①

a. 1.5 L

\_\_\_\_\_

①

b. 6.0 L

\_\_\_\_\_

